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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/806,397

03/23/2004

Wataru Saito

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10/17/2005

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EXAMINER

PRENTY, MARK V

ART UNIT

PAPER NUMBER

2822

DATE MAILED: 10/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/806,397

Applicant(s)

SAITO ET AL.

Examiner

MARK PRENTY

Art Unit

2822

PM

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11-22 is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☒ Claim(s) 4-10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

This Office Action is in response to the amendment filed on September 30, 2005.

Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over newly cited United States Patent 6,316,793 to Sheppard et al. (Sheppard) together with newly cited United States Patent 6,100,571 to Mizuta et al. (Mizuta).

With respect to independent claim 1, Sheppard discloses a power semiconductor device (see the entire patent, including the Fig. 1 disclosure) comprising: a first semiconductor layer 16 of non-doped $\text{Al}_x\text{Ga}_{1-x}\text{N}$ ($0 \leq x \leq 1$) (see column 4, lines 24-26); a second semiconductor layer 17 of non-doped or n-type $\text{Al}_y\text{Ga}_{1-y}\text{N}$ ($0 \leq y \leq 1$) (see column 4, lines 24-26) disposed on the first semiconductor layer; source and drain electrodes 20 and 21 disposed separately from each other, and electrically connected to the second semiconductor layer; a gate electrode 22 disposed on the second semiconductor layer between the source and drain electrodes; and an insulating film 23 covering the second semiconductor layer between the gate and drain electrodes.

The difference between claim 1 and Sheppard is claim 1 further comprises "a first field plate electrode disposed on the insulating film and electrically connected to the gate electrode; and a second field plate electrode disposed on the insulating film and electrically connected to the source electrode."

Mizuta teaches providing a field effect transistor with field plate electrodes connected to its gate and source electrodes in order to increase its withstanding voltage (see the entire patent, including the paragraph bridging columns 7 and 8).

It would have been obvious to one skilled in this art to provide Sheppard's transistor with a first field plate electrode disposed on insulating film 23 and electrically

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connected to gate electrode 22, and a second field plate electrode disposed on insulating film 23 and electrically connected to source electrode 20, in order to increase its withstanding voltage as taught by Mizuta.

Claim 1 is thus rejected under 35 U.S.C. 103(a) as being unpatentable over Sheppard together with Mizuta.

With respect to dependent claim 2, Mizuta's second field plate electrode (connected to the source electrode) comprises an intermediate electrode portion interposed between the first field plate electrode (connected to the gate electrode) and the drain electrode (see the paragraph bridging columns 7 and 8).

Claim 2 is thus rejected under 35 U.S.C. 103(a) as being unpatentable over Sheppard together with Mizuta.

With respect to dependent claim 3, Sheppard's insulating film 23 comprises a first insulating film disposed on the second semiconductor layer 17, and the first field plate electrode and the intermediate electrode portion would be disposed on insulating film 23, as per Mizuta's field plate electrodes teaching (again, see the paragraph bridging columns 7 and 8).


Claim 3 is thus rejected under 35 U.S.C. 103(a) as being unpatentable over Sheppard together with Mizuta.

Claims 4-10 are objected to as being dependent upon a rejected base claim, but would be allowable over the prior art of record if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 11-22 are allowable over the prior art of record.

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Registered practitioners can telephone the examiner at (571) 272-1843. Any voicemail message left for the examiner must include the name and registration number of the registered practitioner calling, and the Application/Control (Serial) Number. Technology Center 2800's general telephone number is (571) 272-2800.


Mark V. Prenty
Primary Examiner